Goddard Procedures and Guidelines

DIRECTIVE NO.	GPG 7120.3	**APPROVED BY Signature:**	*Original Signed By*
EFFECTIVE DATE:	10-26-01	**NAME:**	A. V. Diaz
EXPIRATION DATE:	10-26-06	**TITLE:**	Director

Responsible Office: 400 /Flight Programs and Projects Directorate

Title: Goddard Management of Principal Investigator Mode Missions

PREFACE

P.1   PURPOSE

This document, Goddard Management of Principal Investigator (PI) Mode Missions, describes the roles and responsibilities of the PI, Goddard as the Lead Center for Earth and Space Science Programs, the Program Office, the Implementing Organization, and NASA Headquarters (HQ) with respect to the overall management of PI-Mode missions at the Goddard Space Flight Center (GSFC). These guidelines are consistent with NPG 7120.5, NASA Program and Project Management Processes and Requirements, which allows for tailoring of requirements according to mission size, complexity, criticality, and risk.

P.2   APPLICABILITY

This directive applies to Programs with PI-Mode Projects/Missions at the GSFC, which is the Lead Center for both the Earth and Space Explorers Programs. It is also applicable to all PI-Mode projects/missions where GSFC has been selected as a team member by the PI, or has Implementing Organization responsibility.

P.3   AUTHORITY

a. NPD 7120.4, Program/Project Management
b. NPG 7120.5, NASA Program and Project Management Processes and Requirements

P.4   REFERENCES

a. GPG 7120.1, Program Management
b. GPG 7120.2, Project Management
c. GPG 8700.4, Technical Review Program

P.5   CANCELLATION

None

P.6   RECORDS

None

PROCEDURE

1. DEFINITIONS

a.   Lead Center – The NASA Center that is assigned the Lead Program Office responsibility for the development and implementation of the PI-Mode missions. Goddard is the Lead Center for both Earth and Space Explorers Programs. As such, Goddard is responsible to the respective NASA HQ Enterprise to assure successful implementation of the missions.

b.   Program Office – The Lead Center office that is responsible for the development and implementation of the PI-Mode missions that have either been assigned or selected through an Announcement of Opportunity (AO) process by the NASA Earth or Space Science Enterprises. The Program Office includes the Program Manager, Project/Mission Manager, and all other Program staff.

c.   Principal Investigator Mode (PI-Mode) – A mission management approach utilizing a Principal Investigator with mission responsibility.

d.   Principal Investigator (PI) - The scientist who is responsible, either through a Government institution, such as Goddard, or through a non-NASA institution via contract, to conceive and carry out, report the results of, a scientific investigation, to the extent authorized by the Enterprise Associate Administrator and reflected in the governing instrument. At a minimum, this includes approval of the instrument specification, advice to the project manager in development and fabrication, participation in final calibration, development and support of the operations plan, and analysis and interpretation of data.

e.   Implementing organization - The organization designated in the PI's proposal and selected under an Announcement of Opportunity, or otherwise designated, by an Enterprise Associate Administrator to carry out the daily project management and overall system engineering responsibilities of the science investigation. The Implementing organization may be a NASA Center, including Goddard as the Lead Center.

2. GENERAL

PI-Mode Mission Management is a form of implementing a scientific mission that directly involves the PI in the daily management of the proposed investigation. It is a strategy intended to increase the cost effectiveness and mission success of a mission by closely coupling the focused science requirements to daily mission management, reducing team size, and fostering alternative management approaches. The PI is responsible for overall mission success as defined in the governing agreement. Goddard, as the Lead Center, is responsible for monitoring the PI's progress and maintaining sufficient insight into the development activities to ensure that the cost, schedule, and technical performance of the mission remains within established boundaries.

Every PI Mission is unique. Factors that vary from mission to mission include the complexity of the mission itself, the problems encountered, as well as both the experience base and project management skills of the PI Team. As a result, the extent of Goddard's involvement varies from mission to mission, and with time for a given mission. The level of involvement should be appropriate to the needs of the PI Team while ensuring that

the program office can carry out its roles and responsibilities. The extent of Goddard's anticipated insight into a particular PI mission is documented at the outset of the investigation, either in the contractual agreement for a non-Government PI or in an insight agreement for Government PIs.

3. ROLES AND RESPONSIBILITIES

3.1 For the purposes of this document, it is assumed that the HQ EAA will retain responsibility for:

a. managing the AO process and ensuring that missions are selected on the basis of both scientific merit and the ability of the PI's team to accomplish the mission within the requirements and constraints defined in the AO;

b. approving the mission level requirements, including full and minimum mission success criteria, and controlling those requirements;

c. conducting Mission Confirmation Reviews;

d. conducting Mission Termination Reviews (as required);

e. developing Program Operating Plan budget guidelines and reviewing/approving Program budgets;

f. providing funding to the Lead Center Program Office; and

g. providing interfaces to external organizations, particularly in developing international and inter-agency agreements.

3.2 As the Lead Center for the Earth and Space Explorer Program, Goddard is responsible for:

a. providing for Program Office management;

b. providing Goddard Program Management Council (PMC) oversight which includes:

   (1) Confirmation Readiness Reviews
   (2) Monthly Status Reviews
   (3) Special reviews, as required
   (4) Mission Readiness Reviews

c. concurring in the PI's certification at the Mission Readiness Review that the mission is ready for launch.

3.3 The Program Office in the Flight Programs and Projects Directorate is responsible for:

a. supporting HQ during the AO process as requested while ensuring a "communication firewall" with any GSFC proposers responding to the AO;

b.   ensuring the PI takes the appropriate actions to achieve mission success within committed cost, schedule, and NASA requirements and constraints;

c.   conducting ongoing assessments of the programmatic progress of the mission including management, cost, and risk;

d.   conducting technical and resource management of all contracts, grants, and task orders;

e.   Coordinating the provision of all government-furnished services and hardware, such as co-Investigator services, instruments, spacecraft, space communication support, launch services, etc.;

f.   calling for a status review if there is evidence that the mission could violate pre-determined cost and/or schedule constraints or not meet Level 1 requirements; this review would be a precursor to a potential formal Termination Review;

g.   selecting a Contracting Officer's Technical Representative for any GSFC contracts (this would typically be the role of the Mission Manager);

h.   appointing a Mission Manager who will:

   (1)   Provide specific management functions (e.g., launch vehicle interface) as required
   (2)   Recommend alternative courses of action when technical, cost, or schedule difficulties arise
   (3)   Assure that adequate government resources are applied to the mission as required
   (4)   Lead the GSFC engineering team in providing Program Office technical oversight/insight throughout the mission life cycle including mission operations
   (5)   Organize and provide for system and subsystem engineering expertise for each mission utilizing the services from the Applied Engineering & Technology Directorate and the Systems Technology and Advanced Concepts Directorate (providing the program office with mission technical insight, engineering support, analysis, test support, peer and system review support, etc.)
   (6)   Organize and provide for mission assurance and safety support from the Office of Systems Safety and Mission Assurance

i.   approving the Project Plan;

j.   developing a System Review Plan for the approval of the Systems Management Office (SMO) that addresses the organization and conduct of System Level Reviews (e.g., System Requirements Review, Preliminary Design Review, Critical Design Review, Pre-Environmental Review, Operations Readiness Review, Pre-Ship Review, Red Team Review, Launch Readiness Review etc.);;

k.   providing recommendations to the SMO for the selection of an independent, external co-chair for the standing review panel for System Level Reviews, per GPG 8700.4 "Technical Review Program";

l.   presenting an independent assessment of technical status, Estimate To Complete, schedule, descope plans, and reserves at the Mission Confirmation Readiness Review;

m.   coordinating system and discipline engineering support to the PI as provided for in the governing agreement, whether requested by the PI or deemed necessary by the Program Manager;

n.   using its resource and business staff to maintain insight and provide recommendations through contract and budget analyses and personal contacts;

o.   providing insight to NASA management through monthly reviews, weekly reporting, timely notification of problems/resolution plans, and involvement in special reviews;

p.   generating with the PI and PI Team a Mission Level Requirements Document that is approved by the Enterprise at Mission Confirmation;

q.   ensuring that the Project complies with all applicable government and NASA-specific policies and regulations; and

r.   coordinating the transfer of NASA Mission Operations responsibility to the appropriate Project Office following completion of on-orbit checkout.

3.4 The PI is responsible for:

a.   ensuring overall mission scientific and programmatic success as defined in the governing instrument;

b.   assembling and leading the science, management and technical team to formulate, implement and operate the mission;

c.   establishing an experienced team with the proper project management and infrastructure in place to manage and implement the mission. (The PI may delegate project management and implementation to an institution other than his own.);

d.   generating and adhering to a Project Plan that meets the requirements of NPG 7120.5;

e.   conducting Peer Reviews and providing the results to the System Level Reviews:

   (1)   The PI is required to staff the Peer Reviews with independent, experienced, experts from outside the PI Team as well as team members.
   (2)   Goddard technical experts assigned through the Program Office will participate in these reviews
   (3)   The Program Office is to be invited to all reviews;

f.   staying actively involved with all aspects of mission implementation, decision making, and reporting;

g.   reporting technical and programmatic (schedule and schedule slack, cost and cost reserve, manpower) progress and status;

h.   demonstrating readiness to transition from Formulation to Implementation at the Confirmation Readiness Review;

i.   developing and implementing an education and outreach activity consistent with the proposal and the Enterprise education and outreach strategy;

j.   certifying that the mission is ready for launch at the Mission Readiness Review; and

k.   notifying the GSFC Mission Manager or Mission Director in the event of a significant on-orbit anomaly.

4.   ACRONYM LIST

AO	Announcement of Opportunity
EAA	Enterprise Associate Administrator
GPG	Goddard Procedures and Guidelines
GSFC	Goddard Space Flight Center
HQ	NASA Headquarters
NASA	National Aeronautics and Space Administration
NPG	NASA Procedures and Guidelines
PI	Principal Investigator
PMC	Program Management Council
SMO	Systems Management Office

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	10-26-01	Initial Release